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Jan Van Sinderen

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NXP, B.V.

NXP INTELLECTUAL PROPERTY & LICENSING

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SAN JOSE, CA 95131

EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

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NOTIFICATION DATE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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ip.department.us@nxp.com

Response to Arguments

1. Applicant's arguments filed 9/28/09 have been fully considered but they are not persuasive.

In the response filed on 9/28/09, in the Remark, Applicant contends that

The Final Office Action dated August 24, 2009 indicated that: claims 6 and 8 are allowed; claims 1-5 and 7 stand rejected under 35 U.S.C. § 112(1); claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) over Ichihara (U.S. Patent No. 7,206,360) in view of Olson (U.S. Patent No. 7,0502,778); and the drawings stand objected to.

The previous non-final Office Action dated March 17, 2009 indicated claim 1 was rejected under 35 U.S.C. § 103(a) over the '360 reference in view of Birleson (U.S. Patent No. 6,177,964); claims 2-5 were rejected under 35 U.S.C. § 103(a) over the '360 and '964 references and further in view of the '778 reference; claim 7 was rejected under 35 U.S.C. § 103(a) over the '360, '964, and '778 references in view of Leenaert (U.S. Patent No. 6,999,745). These rejections have not been withdrawn and have not been addressed in the Final Office Action. Applicant traverses all of the rejections and, unless explicitly stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action. In the Final Office Action, after rejecting claims 1-5, and 7 on grounds of § 112 paragraph 1, the Examiner failed to examine the claims "on the merits for compliance with other statutory requirements, including those of 35 U.S.C. 101, 102, 103, and 112," as required by M.P.E.P. §2163 and §707.07(f). Particularly, the Final Office Action did not address the previously presented § 103(a) rejections of the claims.

In response, the examiner asserts that claims 1-5, 7 have been rejected under 35 USC 112 **first** paragraph. Therefore, the examiner does not fail to examine the claims "on the merits for compliance with other statutory requirements as required by MPEP §2163 and §707.07(f). Therefore, Applicant's argument regarding 35 USC103 rejection for claims 1-5, 7 from previous Office Actions is irrelevant to the current Office Action.

As to claims 9, 11, Applicant contends that

Applicant respectfully traverses the § 103(a) rejections because the cited combination of references lacks correspondence. For example, none of the asserted references teaches the claimed invention "as a whole" (§ 103(a)) including, e.g., aspects of the claimed invention directed to making amplitude corrections during frequency translation. Because none of the references teaches these aspects, no reasonable combination of these references can provide correspondence. As such, the § 103 rejections fail.

Specifically, the Office Action has not cited any supporting discussion in the '360 reference which teaches that the cited amplitude detector carries out amplitude correction during any frequency translation.

In response, it is noted that the claims appear to rely on the "during" terminology limitation. However, since the feedback loop of the amplitude correction circuit is the only feature that would be capable of interpreting the "during" terminology limitation, and since **Ichihara** teaches a mixer and a feedback loop for the amplitude correction circuit, Ichihara would obviously teach the claimed limitation.

The Examiner suggests to modify Figure 1 of the '360 reference to place amplification circuit 7a of Figure 1 directly after demodulation circuit 4 of Figure 1, as to enable demodulation and amplification circuits to be combined. However, the reference provides no disclosure or suggestion that amplitude adjustment is functional prior to such bandpass filtering, as suggested by the Examiner.

In response, it is noted that placing the bandpass filter either before or after the amplifier is just simply a matter of rearrangements of parts. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ichihara for placing the amplifier before the filter since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Applicant further contends that

Rather, the '360 reference teaches away from making amplitude corrections during frequency translation, and thus teaches away from the proposed combination. Consistent with the recent Supreme Court decision, M.P.E.P. § 2143.01 explains the long-standing principle that a § 103 rejection cannot be maintained when the asserted modification undermines either the operation or the purpose of the main ('360) reference - the rationale being that the prior art teaches away from such a modification. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007) ("[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious."). In this instance, the purpose of the '360 reference teaches away from correction during demodulation. Instead, the '360 reference teaches that the amplitude deviation correction be carried out "after orthogonal demodulation" (see column 1 in the "Field of Invention"). Referring to the discussion of Figure 1 at Column 4:61 - 5:26, the cited rectifiers (51, 52) and correction (19) occur after demodulation (at demodulator 4) and are carried out on the respective I and Q signals (i. e., after the signals have been band pass filtered). Thus, there is no motivation to modify the '360 reference to carry out correction during frequency translation because such a modification would undermine this purpose.

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In response, it is noted that the claimed invention is just simply combining the mixers and amplifiers to form a circuit to be called "mixer circuit". Since Ichihara teaches mixers (or demodulator) and amplifiers coupled to each other, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ichihara for combining the mixers and amplifiers (and even filters) to form a circuit called "mixer circuit", and this would read on the claimed "mixer circuit" since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Here, it appears that the "**during**" limitation is used because the specification considers that the amplitude correction is performed **inside** the "mixer circuit", where the "mixer circuit" comprises mixers and amplifiers. However, the examiner does not agree with this interpretation because this "mixer circuit" is just simply a combination of two elements, and such combination would have been obvious to one skilled in the art since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

However, the examiner notes that the **feedback loop** of the amplitude correction would support the "**during**" limitation. Therefore, since Ichihara teaches a feedback loop for amplitude correction, Ichihara would obviously teach the claimed "during" limitation and does not teach away from making amplitude correction during frequency translation as alleged by Applicant.

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Applicant further contends that.

The § 103 rejections are further improper because the '360 reference teaches away from the combination with the '778 reference. The '360 reference does not disclose a polyphase filter as claimed in the present invention. The Office Action proposes to modify Fig. 1 of the '360 reference to include the polyphase filter disclosed in the '778 reference. However, the '778 reference only teaches the use of a polyphase filter as an IF filter (see claim 6). The '360 reference teaches that one benefit of performing direct conversion into a baseband signal, as claimed in the '360 reference, is that the IF filter can be removed from the circuit and the need for a second local oscillator is avoided (see Column 2:55-2:65). Because, the proposed addition of the polyphase IF filter of the '778 reference undermines the operation or the benefit provided by the main ('360) reference, there is no motivation to make the proposed modification.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves **or** in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, since one skilled in the art would recognize that a polyphase filter is just a well known filter for filtering distortions, out of band signals, noises, etc, and that it can be used either at RF, IF or baseband frequency, it would have been obvious to one skilled in the art at the time the invention was made to modify **Ichihara** to utilize a poly-phase filter for further improving the performance of the system (i.e, filter distortions caused by amplifier circuits).

Applicant further traverses the § 103(a) rejection of claims 4 and 5 because the cited references do not correspond to the claimed invention. Specifically, Applicant submits that the Examiner has not presented any reference that discloses a further amplitude detector circuit for making common mode corrections of an amplifier circuit of a mixer.

In response, it is noted that Applicant's argument is irrelevant because claims 4-5 are rejected under the 112 first paragraph.

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Applicant further contends that

Applicant respectfully traverses the § 112(1) rejection of claims 1-5 and 7 because aspects of these claims are fully supported by Applicant's specification in compliance with the written description requirement, as has been discussed in detail in the previous three Responses. In this instance, the Examiner has not met the initial burden of a thorough reading and evaluation of the application and has presented neither sufficient evidence nor sufficient analysis/reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. See, e.g., M.P.E.P. § 2163. Applicant submits that the original disclosure is sufficient to enable one skilled in the art to recognize and understand the invention as currently claimed (see, e.g., paragraphs 0039-0041). See, e.g., *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989 (Fed. Cir. 2000), cert. denied, 69 U.S.L.W. 3165 (Feb. 20, 2001) (No. 00-249) (quoting *In re Gosteli*, 872 F.2d 1008, 1012, 10 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1989) ("The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.'").

The Final Office Action maintains that the original disclosure does not describe "at least one output signal of mixer circuit includes video image data without audio data and wherein audio data is processed in a signal path that is separate from said signal having video-image data." Applicant submits that paragraph 0031 discusses frequency translation of a signal comprising "video+audio" data and paragraph 0041 discusses how video and audio signals are separated by the mixer system and processed.

The mixer system that provides the audio signal from the video signal is illustrated in the Figures in a manner that is clear and further consistent with a basic level of understanding of one of skill in the art for one of several example contexts provided. For the "mobile phone camera picture" disclosed as one example application in paragraph 39, one skilled in the art at the time of filing would recognized that in relevant cellular systems network audio data is transmitted on one frequency channel and video data is transmitted on a second frequency channel. See, e.g., U. S. Patent No. 5,784,572 (Rostoker et al.) and U. S. Patent No. 7,206,360 (Ichihara). Similarly, in television signal context, audio and video are transmitted on different frequencies. See U.S. Patent No. 5,541,672 (Goeckler et al.) and U.S. Patent No. 7,050,778 (Olson).

In response, it is not clear whether Applicant implies that the claimed limitation is a well known feature or that such claimed limitation would have been obvious to one skilled in the art.

Applicant further contends that

With reference to the cellular example, Paragraph 39 describes that the mixer block "frequency translates (downconverts and/or demodulates)" signals comprising audio/video information in the context of a mobile phone camera picture application." In downconversion, it is well understood in the art that a mixer multiplies the received RF signal with specific oscillator frequency to frequency translate or down-convert a signal from a specific frequency band which is then filtered to isolate certain harmonics. Paragraph 39 discloses this operation in relation to the audio and video signals which are understood, from the context of the mobile phone example, to include audio and video signals transmitted at different frequencies.

Paragraph 39 specifically states:

[Signals] are for example supplied to said mixer block 3 either via one or more polyphase filters (in case of mixer-block 3 comprising for example four mixers (multipliers) etc.) for converting the signals comprising audio/video information into complex signals (like for example I and Q signals) and for filtering certain harmonics discloses that the output of each mixer Said mixer block 3 frequency translates (downconverts and/or demodulates) signals comprising audio/video information received via for example

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a mobile phone connection... The output signals of mixer-circuit 2 are for example supplied to one or more further polyphase filters for filtering and deconverting said output signals.

In response, the examiner asserts that paragraph [39] does not support the limitation “at least one output signal of said mixer-circuit includes a signal having video-image data without audio data and wherein audio data is processed in a signal path that is separate from said signal having video-image data”, and where the input signal to the mixer circuit comprises audio/video information.

Applicant further contends that

Paragraph 41 further discloses the operation of isolating an audio signal from a video signal by mixing and states:

Each mixer or multiplier frequency translates an input signal through mixing or multiplying said input signal with a local oscillator signal. This results in a wanted signal and an unwanted image. To suppress said unwanted image signal, two mixers or multipliers are used each receiving said input signal which two mixers or multipliers are followed by one or more polyphase filters.

In response, the examiner asserts that paragraph [39] does not support the limitation “at least one output signal of said mixer-circuit includes a signal having video-image data without audio data and wherein audio data is processed in a signal path that is separate from said signal having video-image data”, and where the input signal to the mixer circuit comprises audio/video information.

Applicant further contends that

A similar processing would be appreciated for the television-signal context in connection with the mixer block 3 and according to the present invention. Many U. S. patents would further support this well-known background.

In response, it is not clear whether Applicant implies that the claimed limitation is a well known feature.

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Applicant further contends that

Accordingly, paragraphs 39 and 41 disclose that an audio signal is isolated/separated from a video signal by two mixers followed by one or more polyphase filters. Applicant further submits that one skilled in the art would recognize that two of the four mixer circuits disclosed in mixer block 3 of Figures 3 and 4 are used to isolate the audio signal by suppressing the video signal as discussed in paragraph 41. Conversely, one skilled in the art would further recognize that the video signal may be isolated by suppressing the audio signal in the same manner, using the remaining two mixers in mixer block 3 of Figures 3 and 4. Moreover, this is consistent with the Examiner's own indication that "it is noted that when processing a video signal which comprises image data and audio data, one skilled in the art would recognize that these two components would be separated by a mixer..." (see page 5 of previous Final Office Action dated October 6, 2008). Figures 1 and 4 further show output of the four mixers in block 3 connected independently to amplifier circuits and demonstrate that signals produced by each mixing block would be processed for amplitude correction on different signal paths.

In response, the examiner asserts that paragraph [39] does not support the limitation "at least one output signal of said mixer-circuit includes a signal having video-image data without audio data and wherein audio data is processed in a signal path that is separate from said signal having video-image data", and where the input signal to the mixer circuit comprises audio/video information. Further, it is not clear whether Applicant implies that the claimed limitation is a well known feature.

Applicant further contends that

Applicant respectfully submits that the written description requirement has been more than satisfied by way of explicit language and illustrations in Applicant's originally- filed specification, and as consistent with the Examiner's indications of what one of skill in the art would understand. Regarding the objection to the drawings, Applicant respectfully traverses the objection to the drawings in view of the current amendment to paragraph 0041, which Applicant believes is clear regarding how the drawings support aspects directed to separating the audio and video signals.

In response, the examiner asserts that the "unwanted signal" in paragraph [0041] would comprise noises, interferences, out-of-band signals, LO leakages, etc....

Therefore, in order to find the best prior art suitable for the claimed limitation "at least one output signal of said mixer-circuit includes a signal having video-image data without audio data and wherein audio data is processed in a signal path that is separate from

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said signal having video-image data”, and where the input signal to the mixer circuit comprises audio/video information, a drawing would be necessary. Here, the drawings must show every feature of the invention specified in the claims, see 37 CFR 1.83(a). Therefore, the “component” or “the signal path” that separates audio signal from the video signal must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Here, it is not clear why Applicant would not submit a drawing that would show a feature that would distinguish the claimed invention from the cited prior art while in the contrary, the argument seems to imply that the claimed feature is just an obvious feature that would not require a drawing. Therefore, until the objection to the drawing and the 112 first paragraph rejection would be resolved **so that an accurate search could be performed**, the rejection would be maintained as below.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “component” or “the signal path” that separates audio signal from the video signal must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims **1-5, 7** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claim 1 recites a limitation of "said at least one output signal of said mixer-circuit includes video-image data without audio data and wherein audio data is processed in a signal path that is separate from said at least one output signal of said

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mixer-circuit”, This limitation was **never** described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Here, the specification (i.e, paragraphs [0039-0041]) only describe the signals comprise video/audio information, but **never describe** at least one output signal of mixer-circuit includes video-image data without audio data and wherein audio data is processed in a signal path that is separate from said at least one output signal of said mixer-circuit.

Claim Rejections - 35 USC 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims **9, 11** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Ichihara** (US Pat. Number **7,206,360**) in view of **Olson** (US Patent Number **7,050,778**).

Regarding claim **9**, **Ichihara** discloses a mixer-system comprising a mixer-circuit with at least two mixers for frequency translating RF signals and comprising an amplitude detector (fig. 4, rectifier 51, 52) for making amplitude corrections (see Figs. 1-2, ref. 19) for at least one output signal of said mixer-circuit, wherein said amplitude corrections are made during said frequency translating of said RF signals (see Figs. 1-4 and Abstract, note for the **feedback** correction in Fig. 1 which clearly suggest corrections are made during frequency translating), wherein it would have been obvious

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to one skilled in the art that the receiver in **Ichihara** would be able to receive video information as well as audio information contained in a RF signal, noting that has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham 2* USPQ2d 1647 1987).

As to the claimed limitation regarding a polyphase filter, it is noted that utilizing a poly-phase filter coupled to a mixer is well known in the art as disclosed by **Olson** (see Fig. 13 regarding poly-phase filter 1318), it would have been obvious to one skilled in the art at the time the invention was made to modify **Ichihara** to utilize a poly-phase filter as claimed, for further improving the performance of the system (i.e, filter distortions caused by amplifier circuits).

Therefore, the claimed limitations are made obvious by **Ichihara** in view of **Olson**.

Regarding claim **11**, the claim is rejected for the same reason as set forth in claim 9 above, where it is clear that the polyphase filter would suppress (filter) the video signal as claimed (intended use). In addition, it would have been obvious to one skilled in the art to couple the polyphase filter either before or after the detector 51, 52 in Ichihara because it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950). Therefore, by coupling the polyphase filter after the detector 51, 52, it is clear that **Ichihara** as modified would

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teach the amplifier circuit being connected between the polyphase filter and the at least two mixers.

Allowable Subject Matter

7. Claims **6, 8** are allowed.

Conclusion

8. **Any response to this action should be mailed to:**

Box A.F.

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or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window,

Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Maung (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

Oct 8, 2009